

ABSTRACT OF THE DISCLOSURE

A process for the formation of particulate material of a desired substance including: (i) charging a particle formation vessel with a supercritical fluid; (ii) agitating the contents of the particle formation vessel with a rotary agitator, creating a relatively highly agitated zone and a bulk mixing zone; (iii) introducing into the agitated particle formation vessel at least a first feed stream comprising at least a solvent and the desired substance dissolved therein and a second feed stream comprising the supercritical fluid through a second feed stream introduction port, wherein the desired substance is less soluble in the supercritical fluid relative to its solubility in the solvent, and wherein the first and second feed streams are introduced into the highly agitated zone of the particle formation vessel and the first feed stream is dispersed in the supercritical fluid by action of the rotary agitator, allowing extraction of the solvent into the supercritical fluid, and (iv) precipitating particles of the desired substance in the particle formation vessel with a volume-weighted average diameter of less than 100 nanometers.